

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Masato IWANAGA et al.**

Art Unit: **1795**

Application Number: **10/584,266**

Examiner: **Claire L. Rademaker**

Filed: **June 23, 2006**

Confirmation No.: **5652**

For: **NONAQUEOUS ELECTROLYTE SECONDARY BATTERY**

Attorney Docket Number: **062698**

Customer Number: **38834**

REPLY BRIEF

MAIL STOP Appeal Brief - Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

February 9, 2010

Sir:

In response to the Examiner's Answer mailed December 10, 2009, Appellant submits the following Reply Brief, which begins on page 2 of this paper.

REMARKS

The critical technical feature of the present invention is the electrolyte containing **both** VC and di(2-propynyl) oxalate (D2PO), and such electrolyte shows remarkably enhanced cycle characteristics and controlled swelling of a battery at high temperature. Table 1 in the specification show that the effect **cannot** be brought out by adding **either** of VC or D2PO **alone** into the electrolyte. Further, Table 1 shows that the effect is brought out more remarkably when VC is added 0.1~3 wt % and D2PO is added 0.1~2 wt %. The batteries of Practical Examples 1~4 and Comparative Example 4, of which the electrolyte contains both VC and D2PO shows 5~15 % higher capacity maintenance ratio and 0.25~0.37 mm less swelling than that of Comparative Example 3, of which the electrolyte contains D2PO only. And further, batteries of Practical Examples 5~7 and Comparative Example 6 show 0.13~0.28 mm less swelling than that of Comparative Example 5, of which contains VC only.

(1) Noh includes vinylene carbonate (VC), but does not show any articulated reason or inherent advantage for including its VC.

Although Noh teaches the addition of 0.1~50 wt % of vinylene carbonate (VC) into electrolyte in paragraph [0039], it does not suggest that the addition would control swelling and enhance cycle characteristics of a secondary battery at high temperature. Noh describes that addition of VC less than 0.1 wt % or more than 50 wt % would deteriorate the battery performance, but the deteriorated performance is not disclosed in Noh. In other words, Noh does not instruct nor suggest any particular amount of VC added into electrolyte, and does not instruct

nor suggest any particular advantage for doing so. Therefore, there is no motivation of combining Noh and Hamamoto.

Comparative Examples 2 and 3 of Noh clearly show the non-advantageous effect from addition of VC into its electrolyte. Composition of electrolyte of the two batteries is same, except that of Comparative Example 3 contains 2 wt % of VC and that of Comparative Example 2 does not contain VC. Both of the batteries showed the same thickness variation rate, 0.50 % (swell amount: 0.5 mm) and the data clearly shows that adding VC does not reduce swelling of a battery.

(2) The Examiner insists that Noh includes VC in its electrolyte to reduce swelling. However, this backed up neither by any direct teaching thereof, nor by observation of the Examples and Comparative Examples of Noh.

The Examiner asserts that the battery of Comparative Example 1 of Noh, of which the electrolyte does not contain VC, shows 0.54 % thickness variation rate. However, examples in Noh except Comparative Examples 2 and 3 differ in their composition, excluding VC, of electrolyte each other, and they are not suitable for verifying or asserting the effect of adding VC. Furthermore, there is no difference between Comparative Examples 2 and 3 in swelling, and therefore, Noh does not suggest that VC controls swelling of a battery.

Despite the Examiner's assertion, Noh does not teach that all nonaqueous electrolytes must contain at least 0.1% VC. Noh only teaches that **its** nonaqueous electrolyte contains at

least 0.1% VC. This is not a suggestion for other electrolytes to include VC, when no advantages are shown associated with the VC.

(3) The Examiner's citation of MPEP §2141.01(a) does not excuse the Examiner's need to show a reason to combined the cited references.

The Examiner cites MPEP §2141.01(a), presumably subsection (I), to assert that “Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed.... Thus a reference in a field different from that of applicant's endeavor may be reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his or her invention as a whole”. However, Appellant notes that this citation from *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (U.S. 2007) in the MPEP is directed only to determining whether non-analogous art may be applied against a claimed invention.

Appellant disagrees that such citation to *KSR* works against Appellant. On the contrary, Appellant cites *KSR* as requiring that the Examiner provide “some articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness”. An Examiner still must “identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does”. Furthermore, the Examiner must make explicit this rationale of “the apparent reason to combine the known elements in the fashion claimed,” including a detailed explanation of “the effects of demands

known to the design community or present in the marketplace” and “the background knowledge possessed by a person having ordinary skill in the art”. Anything less than such an explicit analysis may not be sufficient to support a prima facie case of obviousness.

Appellant respectfully submits that the Examiner has failed to show why one would include the VC from Noh in the inventions of Hamamoto et al.

(4) The Examiner’s criticism of Appellant’s Data is incorrect.

The Examiner criticizes Appellant’s data, specifically Table 1 in the specification, as not showing significant advantages associated with the claimed invention. However, many of the criticisms against the data are associated with the Examiner’s comparison of various inventive Practical Examples against other inventive Practical Examples or Comparative Examples against other Comparative Examples (i.e., Comparative Example 3 versus Comparative Example 5, Practical Example 1 versus Practical Example 2, etc.).

Appellant submits that the Examiner’s comparison of an invention against itself, and the subsequent conclusion that if such a comparison does not show unexpected advantages then there are no unexpected advantages associated with the invention, is simply misapplication of logic.

While the Examiner does attempt to assert minimal effective differences between Practical Example 4 and Comparative Example 4, and between Practical Example 7 and Comparative Example 6, Appellant submits that such differences are discussed as significant in paragraphs [0043] to [0044].

Conclusion

As noted above and in the previous Appeal Brief, there is shown no motivation for combining Noh and Inoue et al., and the present invention has sufficient inventiveness to be granted for patent right.

Thus, for at least the above reasons, Appellant respectfully requests that the Board reverse the Examiner's rejection.

If this paper is not timely filed, Appellant respectfully petitions for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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